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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,698	09/26/2001	Brian A. Leete	42390P12164	8188

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EXAMINER	
KNOLL, CLIFFORD H	
ART UNIT	**PAPER NUMBER**
2112	

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,698	LEETE ET AL.	
	Examiner	Art Unit	
	Clifford H Knoll	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-2, 4-8, 10-13, 15-19, 21-26, 28-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-8, 10-13, 15-19, 21-26, 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to communication filed 7/30/2004. Claims 1-2, 4-8, 10-13, 15-19, 21-26, and 28-30 are pending. Claims 3, 9, 14, 20, and 27 have been cancelled.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1-22 stands rejected under 35 U.S.C. 102(b) as being anticipated by Baker (US 5291614).

Regarding claim 1, Baker discloses generating and initializing primary and secondary interrupt queue heads with endpoints that require more than one frame (e.g., Figure 8, "TCB1", "TCB 2"; col. 12, lines 39-42), and scheduling the queue heads in successive frames (e.g., col. 10, lines 41-45).

Regarding claim 2, Baker also discloses generating of queue heads is done when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame (e.g., col. 12, lines 44-47).

Regarding claim 4, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47); and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 12, lines 47-50).

Regarding claim 5, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47) and one complete split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 12, lines 47-50).

Regarding claim 6, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47) and two complete splits (e.g., col. 12, lines 47-50); and initializing the secondary interrupt queue head to do one complete split (e.g., col. 12, lines 47-50).

Regarding claim 7, Baker also discloses reinitializing the queue heads (e.g., col. 10, lines 44-45).

Regarding claim 8, Baker also discloses a full-speed or low speed device (e.g., col. 2, lines 35-48).

Regarding claim 10, Baker also discloses polling to determine the status of the queue head (e.g., col. 12, lines 42-44).

Regarding claim 11, Baker also discloses polling to determine the status of the queue head (e.g., col. 12, lines 42-44).

Regarding claim 12, Baker discloses the medium that provides instructions for generating and initializing primary and secondary interrupt queue heads with endpoints that require more than one frame (e.g., Figure 8, "TCB1", "TCB 2"; col. 12, lines 39-42), and scheduling the queue heads in successive frames (e.g., col. 10, lines 41-45).

Regarding claim 13, Baker also discloses generating of queue heads is done when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame (e.g., col. 12, lines 44-47).

Regarding claim 15, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47); and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 12, lines 47-50).

Regarding claim 16, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47) and one complete split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 12, lines 47-50).

Regarding claim 17, Baker also discloses initializing the primary interrupt queue head to do one start split (e.g., col. 12, lines 44-47) and two complete splits (e.g., col. 12, lines 47-50); and initializing the secondary interrupt queue head to do one complete split (e.g., col. 12, lines 47-50).

Regarding claim 18, Baker also discloses reinitializing the queue heads (e.g., col. 10, lines 44-45).

Regarding claim 19, Baker also discloses a full-speed or low speed device (e.g., col. 2, lines 35-48).

Regarding claim 21, Baker also discloses polling to determine the status of the queue head (e.g., col. 12, lines 42-44).

Regarding claim 22, Baker also discloses polling to determine the status of the queue head (e.g., col. 12, lines 42-44).

Claims 1-30 stands rejected under 35 U.S.C. 102(e) as being anticipated by Wooten (US 6272499).

Regarding claim 1, Wooten discloses generating and initializing primary and secondary interrupt queue heads with endpoints that require more than one frame (e.g., col. 6, lines 38-41), and scheduling the queue heads in successive frames (e.g., col. 13, lines 4-9).

Regarding claim 2, Wooten also discloses generating of queue heads is done when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame (e.g., col. 13, lines 14-15).

Regarding claim 4, Wooten also discloses initializing the primary interrupt queue head to do one start split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 13, lines 16-19).

Regarding claim 5, Wooten also discloses initializing the primary interrupt queue head to do one start split and one complete split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 13, lines 16-19).

Regarding claim 6, Wooten also discloses initializing the primary interrupt queue head to do one start split and two complete splits; and initializing the secondary interrupt queue head to do one complete split (e.g., col. 13, lines 16-19).

Regarding claim 7, Wooten also discloses reinitializing the queue heads (e.g., col. 12, lines 38-45).

Regarding claim 8, Wooten also discloses a full-speed or low speed device (e.g., col. 3, lines 38-40).

Regarding claim 10, Wooten also discloses polling to determine the status of the queue head (e.g., col. 13, lines 11-14) .

Regarding claim 11, Wooten also discloses polling to determine the status of the queue head (e.g., col. 13, lines 11-14).

Regarding claim 12, Wooten discloses the medium that provides instructions for generating and initializing primary and secondary interrupt queue heads with endpoints that require more than one frame (e.g., col. 6, lines 38-41), and scheduling the queue heads in successive frames (e.g., col. 13, lines 4-9).

Regarding claim 13, Wooten also discloses generating of queue heads is done when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame (e.g., col. 13, lines 11-15).

Regarding claim 15, Wooten also discloses initializing the primary interrupt queue head to do one start split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 13, lines 16-19, Figure 5).

Regarding claim 16, Wooten also discloses initializing the primary interrupt queue head to do one start split and one complete split; and initializing the secondary interrupt queue head to do two complete splits (e.g., col. 13, lines 16-19, Figure 5).

Regarding claim 17, Wooten also discloses initializing the primary interrupt queue head to do one start split and two complete splits; and initializing the secondary interrupt queue head to do one complete split (e.g., col. 13, lines 16-19, Figure 5).

Regarding claim 18, Wooten also discloses reinitializing the queue heads (e.g., col. 14, lines 20-25).

Regarding claim 19, Wooten also discloses a full-speed or low speed device (e.g., col. 3, lines 38-40).

Regarding claim 21, Wooten also discloses polling to determine the status of the queue head (e.g., col. 13, lines 11-14) .

Regarding claim 22, Wooten also discloses polling to determine the status of the queue head (e.g., col. 13, lines 11-14) .

Regarding claim 23, Wooten discloses high speed serial bus, a full-/low-speed and a coupled hub (e.g., col. 3, lines 38-40) to translate bits of data associated with an endpoint between a transfer rate associated with the high-speed serial bus and a transfer rate associated with the full-/low-speed serial bus; a host, comprising: a host controller driver unit to generate, initialize, and schedule a primary interrupt queue head and a secondary interrupt queue head, the primary and secondary interrupt queue heads to represent the endpoint, the endpoint representing a transaction with at the least one remote device (e.g., col. 13, lines 16-20), wherein execution of the endpoint requires more than one frame, the frame comprising a plurality of micro-frames (e.g., col. 13, lines 14-15); a host controller unit, coupled with the high-speed serial bus and the host controller driver unit, to transmit the bits of data associated with the endpoint to and receive the bits of data associated with the endpoint from at least one remote device; and the at least one remote device, coupled with the full-/low-speed serial bus,

to transmit bits of data associated with the endpoint to and receive bits of data associated with the endpoint from the host controller unit (e.g., col. 6, lines 54-59).

Regarding claim 24, Wooten also discloses the host controller driver unit is to schedule the primary and secondary interrupt queue heads such that the primary queue head is positioned in a first frame and such that the secondary interrupt queue head is positioned in a second frame, the second frame being immediately subsequent to the first frame (e.g., col. 13, lines 16-20).

Regarding claim 25, Wooten also discloses the host controller driver unit is to generate the primary and secondary interrupt queue heads when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame in the plurality of micro-frames (e.g., col. 13, lines 14-15).

Regarding claim 26, Wooten also discloses an enhanced host controller interface unit, which includes the host controller unit, the enhanced host controller interface unit to provide an interface between the host controller unit and the host controller driver unit (e.g., col. 3, lines 30-36).

Regarding claim 28, Wooten discloses a high-speed signaling environment; a full-/low speed signaling environment; a hub, wherein the hub is located within the high-speed signaling environment and the full-/low speed signaling environment, to translate bits of data associated with an endpoint between a transfer rate associated with the high-speed signaling environment and a transfer rate associated with the full-/low-speed signaling environment; a host, located within the high-speed signaling environment, coupled with the hub, to transmit bits of data associated with an endpoint to and receive

bits of data associated with the endpoint from at least one remote device (e.g., col. 3, lines 38-40), and to generate, initialize, and schedule a primary interrupt queue head and a secondary interrupt queue head, the primary and secondary interrupt queue heads to represent the endpoint, the endpoint representing a transaction with at the least one remote device (e.g., col. 13, lines 16-20), wherein execution of the endpoint requires more than one frame, the frame comprising a plurality of micro-frames (e.g., col. 13, lines 14-15); and the at least one remote device, coupled with the hub, to transmit bits of data to and receive bits of data from the host, wherein the at least one remote device is located within the full-/low-speed signaling environment (e.g., col. 6, lines 54-59).

Regarding claim 29, Wooten also discloses wherein the host is to schedule the primary and secondary interrupt queue heads such that the primary queue head is positioned in a first frame and such that the secondary interrupt queue head is positioned in a second frame, the second frame being immediately subsequent to the first frame (e.g., col. 13, lines 16-20).

Regarding claim 30, Wooten also discloses wherein the host is to generate the primary and secondary interrupt queue heads when the execution of the endpoint is to begin in one of a third, fourth, or fifth micro-frame in the plurality of micro-frames (e.g., col. 13, lines 14-15).

Claims 1-30 stands rejected under 35 U.S.C. 102(e) as being clearly anticipated by Leete (US 2003/005182).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1-30, Applicant is directed to Figures 5 and 8.

Response to Arguments

Applicant's arguments filed 7/30/2004 have been fully considered but they are not persuasive.

Regarding claims 1 and 12, Applicant argues that Baker "does not disclose generating primary and secondary interrupt queue heads to represent a single endpoint" (p. 13) but rather, "discloses generating and initializing multiple queue heads that represent multiple tasks" (p. 14); however, as used by the Applicant, an endpoint corresponds to "a transaction between the host and a remote device" (par. 3) which is claimed as "a transaction with at least one remote device over a serial bus" (claim 1). Equivalently, Baker discloses "TCB 2 is accessed by step 446 and a frame counter 452 is setup in a frame counter storage area" (col. 12, lines 39-42). Baker's "TCBs" (task control blocks) correspond to the "at least one remote device", which are represented by a single endpoint, namely Baker's "dummy TCB" which "serves as the anchor point of

all the real-time tasks which are linked" (col. 10, lines 41-42). Any additional distinction is not supported by the claims.

Regarding claims 1, 12, 23, and 28, Applicant argues that Wooten "does not disclose generating primary and secondary interrupt queue heads to represent a single endpoint" (p. 15), arguing that Wooten "discloses sending a serial bus packet for each serial bus transaction" (p. 16); however the disclosure relied upon states: "The table entries 502 are pointers to an interrupt list 504 which is a list of endpoint descriptors 302 with each ED pointing to a queue of transfer descriptors 304 for that endpoint, as described above. An ED 302 for an interrupt endpoint may appear on multiple interrupt lists. The more lists in which an ED is linked, the greater its polling rate" (col. 13, lines 4-9). In this interpretation, a unique endpoint for a device is represented in primary and secondary queues and therefore anticipates this feature of the claimed invention.

Regarding claims 1, 12, 23, and 28, Applicant argues that Leete "does not disclose generating primary and secondary interrupt queue heads to represent a single endpoint" (p. 16), arguing that Leete discloses a method for determining whether a queue head has less than or equal to a predetermined packet size and whether a period is one of greater than and equal to a predetermined window" (p. 17); however this observation does not negate the anticipatory nature of Leete. The queues that represent an endpoint in Leete are most clearly shown in Figure 5.

Amendatory language has overcome the rejections under 112 and 101 and these rejections have been withdrawn. The rejections using Baker, Wooten, and Leete are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clifford H Knoll whose telephone number is 571-272-3636. The examiner can normally be reached on M-F 0630-1500.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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